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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,318	12/28/2006	Michitsugu Mori	292878US2PCT	9802
22850	7590	12/16/2008	EXAMINER	
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			PATEL, PUNAM	
			ART UNIT	PAPER NUMBER
			2855	
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			12/16/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/584,318	Applicant(s) MORI ET AL.	
	Examiner PUNAM PATEL	Art Unit 2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/20/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. **The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided.** The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims recite the limitation of "wherein said computer program product makes the ultrasonic flowmeter execute a method including the steps of" in lines 14-15 and 13-15, respectively. A single claim which claims both an apparatus and the method steps of using the apparatus is indefinite. In this instance, the apparatus is the storage medium with the computer program. **See MPEP 2173.05(p) II.**

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Mori et al. (M. Mori, K. Tezuka, H. Tezuka, N. Furuichi, H. Kikura, Y. Takeda. “Industrial application experiences of new type flowmetering system based on ultrasonic-doppler flow velocity-profile measurement.” *Third International Symposium on Ultrasonic Doppler Methods for Fluid Mechanics and Fluid Engineering*. EPFL, Lausanne, Switzerland. September 9-11, 2002).

With respect to Claim 1, Mori et al. disclose an apparatus/method comprising:

an ultrasonic transmitter for launching ultrasonic pulses of a predetermined frequency into the fluid to be measured in a fluid pipe from an ultrasonic transducer along a measuring line (Fig. 6);

a flow velocity distribution measuring means for measuring flow velocity distribution of the fluid to be measured in a measurement region by receiving ultrasonic echoes reflected from the measurement region among the ultrasonic pulses incident into the fluid to be measured (Fig. 8, wherein a flow velocity distribution graph is displayed therefore a graph output unit must be present; Compare with Applicant's Fig. 3);

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a flow rate operation means for calculating a flow rate of the fluid based on the flow velocity distribution (pg. 121-122, the Concluding remarks, wherein the velocity distribution is used to accurately measure flow rates on-site), specifically the flow rate is measured using an integral operation (pg. 116);

an inner wall position calculating unit for calculating the position of the inner wall with respect to the axis in the inner diameter direction by calculating its inflection point from the flow velocity distribution graph (Fig. 8, wherein the inflection point is marked by a vertical line, wherein the computer is read as the unit).

See Fig. 7-8 for the software and hardware that perform the functions/calculations.

With respect to Claims 2 and 3, Mori et al. teach a manual/fine adjustment input data receiver (Fig. 7, wherein the keyboard/touch pad are manual adjustment units). Also see Fig. 8, wherein the software GUI has a "Manual" tab, and input boxes, wherein a numerical value can be typed in.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 4, 5, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al. (M. Mori, K. Tezuka, H. Tezuka, N. Furuichi, H. Kikura, Y. Takeda. "Industrial application experiences of new type flowmetering system based on ultrasonic-doppler flow velocity-profile measurement." *Third International Symposium on Ultrasonic Doppler Methods for Fluid Mechanics and Fluid Engineering*. EPFL, Lausanne, Switzerland. September 9-11, 2002) in view of Wunderlich et al. (Th. Wunderlich, P.O. Brunn. "A wall layer correction for ultrasound measurement in tube flow: comparison between theory and experiment." *Flow Measurement and Instrumentation* 11 (2000) pp 63-69).

With respect to Claims 4, 5, and 7, Mori et al. disclose a method for measuring a flow rate of a fluid in a pipe using an ultrasonic flowmeter comprising the steps of:

outputting a flow velocity distribution graph displaying the flow velocity in two axes of positions in the inner diameter direction of the fluid pipe relating to the measuring line and fluid velocities corresponding to the inner diameter direction (Fig. 8);

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identifying and manually adjusting the inner wall position with respect to the axis in the inner diameter direction on the outputted graph (Fig. 8, the vertical line & wherein the software GUI has a "Manual" tab, and input boxes, wherein a numerical value can be typed in); and

calculating the flow rate of the fluid by an integral operation based on the identified inner wall position (pg. 116). However, Mori et al. fail to explicitly teach performing the step of calculating the inner wall position. Wunderlich et al. disclose the calculating the inner wall position of the fluid pipe (Abstract, Introduction, Eq. 15, & Figs. 6 & 8, wherein it is understood that the calculations maybe performed manually or automatically). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Mori et al. to include the step of calculating the inner wall position using the formula taught by Wunderlich et al., in order to correct the measured data (by applying correction formulas) or to eliminate outlier/deviating data points (Wunderlich, Summary and conclusion & Abstract).

Claims 4, 6, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al. (M. Mori, K. Tezuka, H. Tezuka, N. Furuichi, H. Kikura, Y. Takeda. "Industrial application experiences of new type flowmetering system based on ultrasonic-doppler flow velocity-profile measurement." *Third International Symposium on Ultrasonic Doppler Methods for Fluid Mechanics and Fluid Engineering*. EPFL, Lausanne, Switzerland. September 9-11, 2002) in view of Ghidaoui et al. (M. S. Ghidaoui and A. A. Kolyshkin. Abstract of: "Stability Analysis of Velocity Profiles in Water-Hammer Flows." J. Hydr. Engrg. 127, 499 (2001)).

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With respect to Claims 4, 6, and 8, Mori et al. disclose a method for measuring a flow rate of a fluid in a pipe using an ultrasonic flowmeter comprising the steps of:

outputting a flow velocity distribution graph displaying the flow velocity in two axes of positions in the inner diameter direction of the fluid pipe relating to the measuring line and fluid velocities corresponding to the inner diameter direction (Fig. 8);

identifying and manually adjusting the inner wall position with respect to the axis in the inner diameter direction on the outputted graph (Fig. 8, the vertical line & wherein the software GUI has a "Manual" tab, and input boxes, wherein a numerical value can be typed in); and

calculating the flow rate of the fluid by an integral operation based on the identified inner wall position (pg. 116). However, Mori et al. fail to explicitly teach performing the step of calculating the exact inner wall position by calculating the inflection point from the fluid velocity distribution graph.

Ghidaoui et al. teach that inflection points in the flow velocity profile and the large velocity gradient near the pipe wall are sources of flow instability (Abstract). It is notoriously well known and within the skill of the artisan to utilize mathematics to calculate the exact position of an inflection point on a graph.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the inflection point identification process of Mori et al., to include the steps of calculating the exact position of the inflection point in order to eliminate measured data points after the inflection point since they identify turbulent flow/instable flow (Ghidaoui, Abstract).

Response to Arguments

Applicant's arguments filed 09/08/2008, with respect to claims 1-3 have been fully considered but they are not persuasive.

Applicant's arguments with respect to claims 4-5 have been considered but are moot in view of the new ground(s) of rejection.

Claim 1:

Applicant argues that Mori et al.'s inner wall position calculating unit fails to calculate the position of the inner wall "*by calculating its inflection point from the flow velocity distribution graph outputted by the graph output unit*" (and that "Mori also does not explain how these lines are determined, nor does it explain that an inflection point is used" (Applicant's Arguments, pg. 23). Applicant is reminded that "[w]hile features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997). "[A]pparatus claims cover what a device *is*, not what a device *does*." *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original). See **MPEP 2114 [R-1]**. In this instance, Mori et al. disclose an inflection point marked by a vertical line on the outputted graph, how the inflection point was calculated is not given patentable weight. The calculating unit (the computer connected to the monitor) is operable to calculate and display an inflection point (notoriously well known in mathematics to be a point on a curve at which the curvature changes from convex to concave or vice versa, and apparent in Fig. 8, wherein said point is clearly marked with a line).

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Claims 2 and 3:

Applicant's argues that "Mori does not disclose anything related to an input of manual adjustment data" (Applicant's Arguments, pg. 24). A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (wherein the receiver is "for receiving manual adjustment data regarding an inner wall position"). Applicant's fine adjustment input data receiver (structural element required by Claims 2 and 3) is taught to be a cursor key (Specification, pg. 3). Mori et al. disclose a keyboard/touch pad and a graphic user interface (GUI). Mori et al.'s GUI allows the vertical line identifying the inflection point to be adjusted (see the input box identified with "Distance to the wall (mm)").

Claims 6 and 7:

With respect to the 35 USC 101 rejection of Claims 6 and 7, applicant has amended the claims to recite a storage medium with the computer program (See Applicant's Specification, pg. 13, for support). The apparatus of Claims 6 and 7 cannot be transmitted over communication lines, and is thus statutory subject matter (i.e. not a signal). The 35 USC 101 rejection is withdrawn.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PUNAM PATEL whose telephone number is (571)272-6794. The examiner can normally be reached on Monday to Friday 9:30 AM to 6:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Harshad Patel/
Primary Examiner, Art Unit 2855

PP
12/07/2008